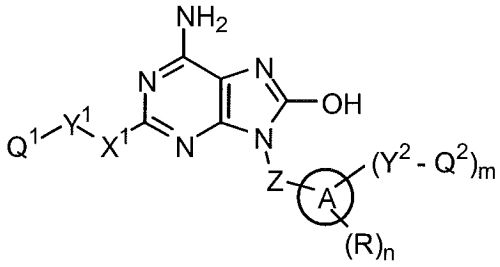
AMENDMENTS TO THE CLAIMS

Please amend the claims as follows:

1 – 88. (canceled)

89. (new) A method for regulating immune response without systemic pharmacological activity comprising topically administering to a patient in need an effective amount of a medicament containing an adenine compound represented by a general formula (1):



wherein

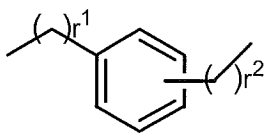
Ring A is a 6 to 10 membered mono- or bicyclic aromatic hydrocarbon ring or a 5 to 10 membered mono- or bicyclic heteroaromatic ring containing 1 to 3 hetero atoms selected from the group of 0 to 2 nitrogen atoms, 0 or 1 oxygen atom and 0 or 1 sulfur atom,

n is an integer selected from 0 to 2, m is an integer selected from 0 to 2,

R is halogen atom, substituted or unsubstituted alkyl group, substituted or unsubstituted cycloalkyl group, substituted or unsubstituted alkoxy group, or substituted or unsubstituted amino group, and when n is 2, R(s) may be the same or different,

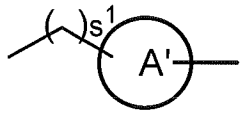
X^1 is oxygen atom, sulfur atom, NR^1 (wherein R^1 is hydrogen atom or alkyl group) or a single bond,

Y^1 is a single bond, alkylene which may be substituted by oxo group, or divalent group of the formula below:



(wherein r^1 and r^2 are independently an integer selected from 1 to 3),

Y^2 is a single bond, alkylene optionally substituted by hydroxy group or oxo group, oxyalkylene, cycloalkylene, oxycycloalkylene, divalent group of a monocyclic hetero ring containing 1 or 2 hetero atoms selected from the group consisting of 1 or 2 nitrogen atoms wherein said nitrogen atom may be substituted, oxygen atoms and sulfur atoms wherein said sulfur atom(s) may be oxidized by 1 or 2 oxygen atoms, or divalent group of the formula below:



(wherein A' is cycloalkylene, s^1 is an integer selected from 1 to 3),

Z is alkylene,

Q^1 is hydrogen atom, halogen atom, hydroxy group, alkoxy group, or a group selected from the group consisting of Substituents set forth below,

Q^2 is a group selected from the group consisting of Substituents set forth below,

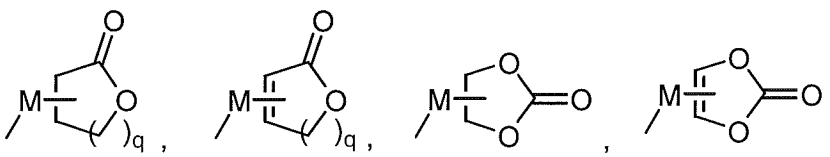
R^{10} or R^{11} in Q^2 may be taken with R to form a 9 to 14 membered fused bi or tricyclic ring together with the adjacent Ring A,

when m is 0, Q^1 is a group selected from the group consisting of Substituents set forth below,

Substituents: $-COOR^{10}$; $-COSR^{10}$; $-OCOOR^{10}$; $-OCOR^{10}$; $-CONR^{11}R^{12}$; $-OCONR^{11}R^{12}$

(wherein R^{10} is substituted or unsubstituted alkyl group, substituted or unsubstituted cycloalkyl group, substituted or unsubstituted alkenyl group, substituted or unsubstituted cycloalkenyl group, or substituted or unsubstituted alkynyl group, R^{11} and R^{12} are independently hydrogen atom, substituted or unsubstituted alkyl group, substituted or unsubstituted cycloalkyl group, substituted or unsubstituted alkenyl group, substituted or unsubstituted cycloalkenyl group, or substituted or unsubstituted alkynyl group, or R^{11} and R^{12} may be taken together to form with the adjacent nitrogen atom a 5 to 7 membered heterocycle containing a nitrogen atom(s));

and any group selected from the following formulas (3) - (6):



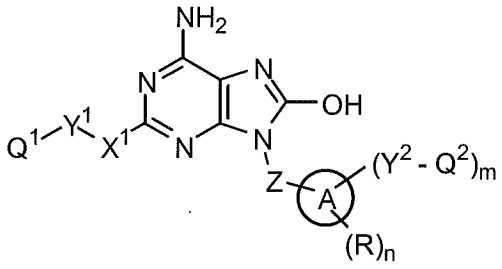
(3) (4) (5) (6)

(wherein M is a single bond, oxygen atom or sulfur atom, and q is an integer selected from 1 to 3),

and when m is 2, the groups (Y^2-Q^2) may be the same or different,

or a pharmaceutically acceptable salt thereof as an active ingredient.

90. (new) The method according to claim 89 wherein the adenine compound is represented by a general formula (1):



wherein

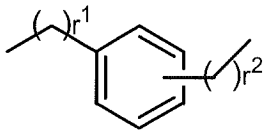
Ring A is a 6 to 10 membered mono or bicyclic aromatic hydrocarbon ring or a 5 to 10 membered mono or bicyclic heteroaromatic ring containing 1 to 3 hetero atoms selected from the group of 0 to 2 nitrogen atoms, 0 or 1 oxygen atom and 0 or 1 sulfur atom,

n is an integer selected from 0 to 2, m is an integer selected from 0 to 2,

R is halogen atom, substituted or unsubstituted alkyl group, substituted or unsubstituted cycloalkyl group, substituted or unsubstituted alkoxy group, or substituted or unsubstituted amino group, and when n is 2, R(s) may be the same or different,

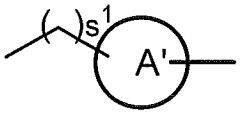
X^1 is oxygen atom, sulfur atom, NR^1 (wherein R^1 is hydrogen atom or alkyl group) or a single bond,

Y^1 is a single bond, alkylene which may be substituted by oxo group, or divalent group of the formula below:



(wherein r^1 and r^2 are independently an integer selected from 1 to 3),

Y^2 is a single bond, alkylene optionally substituted by hydroxy group or oxo group, oxyalkylene, cycloalkylene, oxycycloalkylene, divalent group of a monocyclic hetero ring containing 1 or 2 hetero atoms selected from the group consisting of 1 or 2 nitrogen atoms wherein said nitrogen atom may be substituted, oxygen atoms and sulfur atoms wherein said sulfur atom(s) may be oxidized by 1 or 2 oxygen atoms, or divalent group of the formula below:



(wherein A' is cycloalkylene, s^1 is an integer selected from 1 to 3),

Z is alkylene,

Q^1 is hydrogen atom, halogen atom, hydroxy group, alkoxy group, or a group selected from the group consisting of Substituents set forth below,

Q^2 is a group selected from the group consisting of Substituents set forth below,

R^{10} or R^{11} in Q^2 may be taken with R to form a 9 to 14 membered fused bi or tricyclic ring together with the adjacent Ring A,

when m is 0, Q^1 is a group selected from the group consisting of Substituents set forth below,

Substituents: $-COOR^{10}$; $-COSR^{10}$; $-OCOOR^{10}$; $-OCOR^{10}$; and $-CONR^{11}R^{12}$;

(wherein R^{10} is substituted or unsubstituted alkyl group, substituted or unsubstituted cycloalkyl group, substituted or unsubstituted alkeny group, substituted or unsubstituted cycloalkenyl group, or substituted or unsubstituted alkynyl group, R^{11} and R^{12} are independently hydrogen atom, substituted or unsubstituted alkyl group, substituted or unsubstituted cycloalkyl group, substituted or unsubstituted alkenyl group, substituted or unsubstituted cycloalkenyl group, or substituted or unsubstituted alkynyl group, or R^{11} and R^{12}may be taken together to form with the adjacent nitrogen atom a 5 to 7 membered heterocycle containing a nitrogen atom(s));

and when m is 2, the groups (Y^2-Q^2) may be the same or different,

or a pharmaceutically acceptable salt thereof as an active ingredient.

91. The method according to claim 90, wherein in the general formula (1), the substituent(s), by which alkyl group, alkenyl group or alkynyl group in R^{10}, R^{11} and R^{12} is substituted, are the same or different and at least one substituent selected from the group consisting of halogen atom,

hydroxy group, substituted or unsubstituted alkoxy group, substituted or unsubstituted amino group, substituted or unsubstituted aryl group, and substituted or unsubstituted heterocyclic group.

92. (new) The method according to claim 90, wherein in the general formula (1), Z is methylene and Ring A is benzene.

93. (new) The method according to claim 90, wherein in the general formula (1), Y^1 is C_{1-5} alkylene, Q^1 is hydrogen atom, hydroxy group or alkoxy group, Y^2 is a single bond, and Q^2 is -$COOR^{10}$.

94. (new) The method according to claim 90, wherein in the general formula (1), Z is methylene, Ring A is benzene, R^{10} is alkyl group substituted by hydroxy group, amino group, alkylamino group or dialkylamino group, and m is 1.

95. (new) The method according to claim 90, wherein in the general formula (1), $Y^1$is C_{1-5} alkylene, Q^1 is hydrogen atom, hydroxy group or alkoxy group, Y^2 is C_{1-3} alkylene, Q^2 is -$COOR^{10}$, and m is 1.

96. (new) The method according to claim 90, wherein in the general formula (1), m is 0, Y^1 is C_{1-6} alkylene which may be substituted with oxo group, and Q^1 is -$COOR^{10}$, -$COSR^{10}$, -$OCOR^{10}$, -$OCOOR^{10}$, -$CONR^{11}R^{12}$ or -$OCONR^{11}R^{12}$.

97. (new) The method according to claim 90, wherein in the general formula (1), and X^1 is oxygen atom, sulfur atom or NR^1 (wherein R^1 is hydrogen atom or alkyl group).

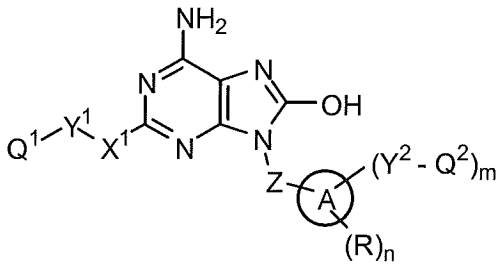
98. (new) The method according to claim 90, wherein in the general formula (1), m is 0, X^1 is a single bond, Y^1 is C_{1-4} alkylene which may be substituted by oxo group, and Q^1 is -$COOR^{10}$.

99. (new) The method according to claim 90, wherein in the general formula (1), either 1) or 2) below obtains:

1) n is 0;

2) n is 1 or 2, and R is alkyl group, alkoxy group or halogen atom.

100. (new) An adenine compound represented by a general formula (1):



wherein

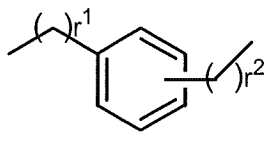
Ring A is a 5 to 10 membered mono or bicyclic heteroaromatic ring containing 1 to 3 heteroatoms selected from the group consisting of 0 to 2 nitrogen atoms, 0 or 1 oxygen atom, and 0 or 1 sulfur atom,

n is an integer selected from 0 to 2, m is an integer selected from 0 to 2,

R is halogen atom, substituted or unsubstituted alkyl group, substituted or unsubstituted cycloalkyl group, substituted or unsubstituted alkoxy group, or substituted or unsubstituted amino group, and when n is 2, R(s) may be the same or different,

X^1 is oxygen atom, sulfur atom, NR^1 (wherein R^1 is hydrogen atom or alkyl group) or a single bond,

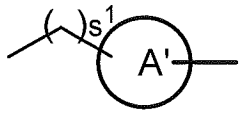
Y^1 is a single bond, alkylene which may be substituted by oxo group, or divalent group of the formula below:



(wherein r^1 and r^2 are independently an integer selected from 1 to 3),

Y^2 is a single bond, alkylene optionally substituted by hydroxy group or oxo group, oxyalkylene, cycloalkylene, oxycycloalkylene, divalent group of a monocyclic hetero ring containing 1 or 2

hetero atoms selected from the group consisting of 1 or 2 nitrogen atoms wherein said nitrogen atom may be substituted, oxygen atoms and sulfur atoms wherein said sulfur atom(s) may be oxidized by 1 or 2 oxygen atoms, or divalent group of the formula below:



(wherein A' is cycloalkylene, s^1 is an integer selected from 1 to 3),

Z is methylene,

Q^1 is hydrogen atom, halogen atom, hydroxy group, alkoxy group, or a group selected from the group consisting of Substituents set forth below,

Q^2 is a group selected from the group consisting of Substituents set forth below,

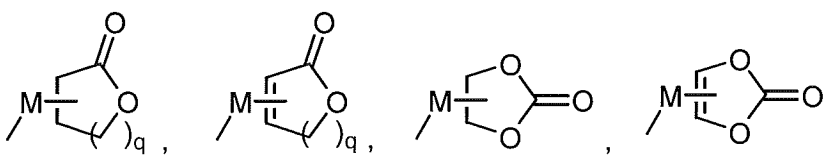
R^{10} or R^{11} in Q^2 may be taken with R to form a 9 to 14 membered fused bi or tricyclic ring together with the adjacent Ring A,

when m is 0, Q^1 is a group selected from the group consisting of Substituents set forth below,

Substituents: $-COOR^{10}$; $-COSR^{10}$; $-OCOOR^{10}$; $-OCOR^{10}$; $-CONR^{11}R^{12}$; $-OCONR^{11}R^{12}$

(wherein R^{10} is substituted or unsubstituted alkyl group, substituted or unsubstituted cycloalkyl group, substituted or unsubstituted alkeny group, substituted or unsubstituted cycloalkenyl group, or substituted or unsubstituted alkynyl group, R^{11} and R^{12} are independently hydrogen atom, substituted or unsubstituted alkyl group, substituted or unsubstituted cycloalkyl group, substituted or unsubstituted alkenyl group, substituted or unsubstituted cycloalkenyl group, or substituted or unsubstituted alkynyl group, or R^{11} and R^{12} may be taken together to form with the adjacent nitrogen atom a 5 to 7 membered heterocycle containing a nitrogen atom(s));

and any group selected from the following formulas (3) - (6):



(3) (4) (5) (6)

(wherein M is a single bond, oxygen atom or sulfur atom, and q is an integer selected from 1 to 3),

and when m is 2, the groups (Y^2-Q^2) may be the same or different,

its tautomer or its pharmaceutically acceptable salt.

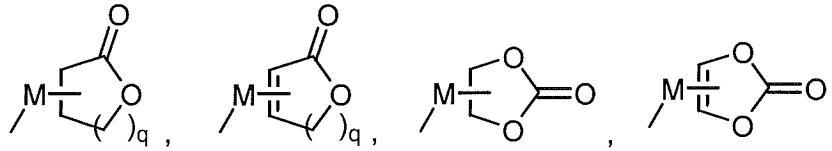
101. (new) The adenine compound, its tautomer or its pharmaceutically acceptable salt according to claim 100, wherein in the general formula (1), the heteroaromatic ring in Ring A is furan, thiophene, or pyridine.

102. (new) The adenine compound or its pharmaceutically acceptable salt according to claim 100, wherein in the general formula (1), Q^1 is hydrogen atom, hydroxy group or alkoxy group, Y^1 is C_{1-5} alkylene, Q^2 is $-COOR^{10}$ (wherein R^{10} is substituted or unsubstituted alkyl group, substituted or unsubstituted cycloalkyl group, substituted or unsubstituted alkenyl group, substituted or unsubstituted cycloalkenyl group, or substituted or unsubstituted alkynyl group), and m is 1.

103. (new) The adenine compound, its tautomer or its pharmaceutically acceptable salt according to claim 100, wherein in the general formula (1), Y^2 is a single bond.

104. (new) The adenine compound, its tautomer or its pharmaceutically acceptable salt according to claim 100, wherein in the general formula (1), m is 0, $Y^1$is C_{1-6} alkylene which may be substituted by oxo group, and Q^1 is $-COOR^{10}$, $-COSR^{10}$, $-OCOR^{10}$, $-OCOOR^{10}$, $-CONR^{11}R^{12}$ or $-OCONR^{11}R^{12}$ (wherein R^{10} is substituted or unsubstituted alkyl group, substituted or unsubstituted cycloalkyl group, substituted or unsubstituted alkenyl group, substituted or unsubstituted cycloalkenyl group, or substituted or unsubstituted alkynyl group, R^{11} and R^{12} are independently hydrogen atom, substituted or unsubstituted alkyl group, substituted or unsubstituted cycloalkyl group, substituted or unsubstituted alkenyl group, substituted or unsubstituted cycloalkenyl group, or substituted or unsubstituted alkynyl group, or R^{11} and R^{12} may be taken together to form with the adjacent nitrogen atom a 5 to 7 membered heterocycle containing a nitrogen atom(s));

and any group selected from the following formulas (3) - (6):



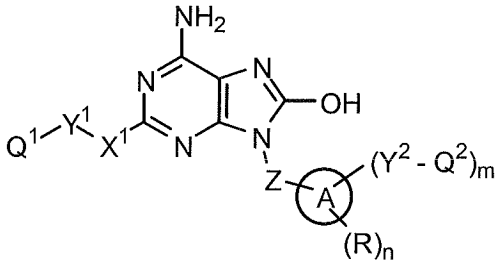
(3) (4) (5) (6)

(wherein M is a single bond, oxygen atom or sulfur atom, and q is an integer selected from 1 to 3).

105. (new) The adenine compound or its pharmaceutically acceptable salt according to claim 100, wherein in the general formula (1), the substituent(s) by which alkyl group, alkeny group or alkynyl group in R^{10}, R^{11}, R^{12}, R^{20}, R^{21} and R^{22} is substituted, are at least one substituent selected from the group consisting of halogen atom, hydroxy group, substituted or unsubstituted alkoxy group, substituted or unsubstituted amino group, substituted or unsubstituted aryl group, and substituted or unsubstituted heterocyclic group.

106. (new) The adenine compound or its pharmaceutically acceptable salt according to claim 100, wherein R is hydrogen atom, alkyl group, alkoxy group, or halogen atom.

107. (new) An adenine compound represented by a general formula (1):



wherein

Ring A is benzene,

n is an integer selected from 0 to 2, m is 1,

R is halogen atom, substituted or unsubstituted alkyl group, substituted or unsubstituted cycloalkyl group, substituted or unsubstituted alkoxy group, or substituted or unsubstituted amino group, and when n is 2, R(s) may be the same or different,

X^1 is oxygen atom, sulfur atom, NR^1 (wherein R^1 is hydrogen atom or alkyl group) or a single bond,

Y^1 is C_{1-5} alkylene,

Y^2 is a single bond,

Z is methylene,

Q^1 is hydrogen atom, hydroxy group or alkoxy group,

Q^2 is $-COOR^{23}$ (wherein R^{23} is alkyl group substituted by amino group, alkylamino group or dialkylamino group),

and m is 1,

its tautomer or a pharmaceutically acceptable salt thereof as an active ingredient.

108. (new) The adenine compound or its pharmaceutically acceptable salt according to claim 100 or 107, wherein in the general formula (1), X^1 is oxygen atom, sulfur atom or NR^1 (wherein R^1 is hydrogen atom or alkyl group).

109. (new) The method according to claim 90, applied for prophylaxis or therapy of an allergic disease.

110. (new) The method according to claim 109 wherein the allergic disease is asthma or atopic dermatosis.

111. (new) The method according to claim 90, wherein the half-life in serum on the compound of the general formula (1) is less than 1 hour.

112. (new) The method according to claim 90, wherein the half-life in liver S9 on the compound of the general formula (1) is less than 1 hour.

113. (new) The method according to claim 90, wherein the medicament is an inhalation formulation.

114. (new) A method for regulating immune response, comprising topically administering to a patient in need an effective amount of an adenine compound of claim 100 or 107.

115. (new) A method for treatment or prophylaxis of allergic diseases without systemic pharmacological activity, comprising topically administering to a patient in need an effective amount of a medicament containing an adenine compound of claim 100 or 107.

116. (new) The method according to claim 115, wherein the allergic disease is asthma or atopic dermatosis.

117. (new) The method according to claim 115, wherein the half-life in serum of the compound of the formula (1) is less than 1 hour.

118. (new) The method according to claim 115, wherein the half-life in liver S9 on the compound of the formula (1) is less than 1 hour.

119. (new) The method according to claim 115, wherein the medicament is administered by inhalation.

120. (New) A compound selected from the group consisting of:

2-Butoxy-8-hydroxy-9-(5-methoxycarbonylfurfuryl)adenine,

2-Butoxy-8-hydroxy-9-(5-isopropoxycarbonylfurfuryl)adenine,

2-Butoxy-8-hydroxy-9-{(6-methoxycarbonyl-3-pyridyl)methyl}adenine,

2-Butoxy-8-hydroxy-9-{(6-isopropoxycarbonyl-3-pyridyl)methyl}adenine,

2-Butoxy-8-hydroxy-9-{6-(4-ethoxycarbonyl-1-piperidyl)-3-pyridylmethyl} adenine,

2-Butoxy-8-hydroxy-9-{6-(3-ethoxycarbonyl-1-piperidyl)-3-pyridylmethyl} adenine,

2-Butoxy-8-hydroxy-9-{(6-ethoxycarbonylmethoxy-2-naphthyl)methyl} adenine),

2-Butylamino-8-hydroxy-9-(5-ethoxycarbonylfurfuryl)adenine,

8-Hydroxy-2-methoxycarbonylmethylamino-9-{(6-methyl-3-pyridyl)methyl} adenine,

2-(2-Acetoxyethylamino)-8-hydroxy-9-{(6-methyl-3-pyridyl)methyl}adenine,

8-Hydroxy-2-(2-methoxycarbonyloxyethylamino)-9-{(6-methyl-3-pyridyl) methyl}adenine,

2-(2-Acetoxyethoxy)-8-hydroxy-9-{(6-methyl-3-pyridyl)methyl}adenine,

8-Hydroxy-9-(6-methyl-3-pyridyl)methyl-2-{2-(propionyloxy)ethoxy} adenine,

2-{2-(Methoxycarbonyloxy)ethoxy}-8-hydroxy-9-{(6-methyl-3-pyridyl) methyl}adenine,

2-{2-(N,N-Dimethylaminocarbonyloxy)ethoxy}-8-hydroxy-9-{(6-methyl-3-pyridyl)methyl}adenine,

8-Hydroxy-9-{(6-methyl-3-pyridyl)methyl}-2-{(2-oxo-1,3-dioxolan-4-yl) methylamino}adenine,

8-Hydroxy-2-methoxycarbonylethyl-9-{(6-methyl-3-pyridyl)methyl}adenine,

2-Butoxy-8-hydroxy-9-{4-(S-methylthiocarbonyl)methylbenzyl}adenine,

2-Butoxy-9-{4-(S-ethylthiocarbonyl)methylbenzyl}-8-hydroxyadenine,

2-Butoxy-8-hydroxy-9-(4-carbamoylinethylbenzyl)adenine,

2-Butoxy-8-hydroxy-9-(4-methylcarbamoylmethylbenzyl)adenine,

2-Butoxy-8-hydroxy-9-(4-dimethylcarbamoylmethylbenzyl)adenine,

2-Butoxy-8-hydroxy-9-(4-morpholinomethylbenzyl)adenine,

2-Butoxy-8-hydroxy-9-(5-methoxycarbonylmethylfurfuryl)adenine,

2-Butoxy-8-hydroxy-9-{(6-S-methylthiocarbonyl-3-pyridyl)methyl}adenine,

2-Butoxy-9-{(6-carbamoyl-3-pyridyl)methyl}-8-hydroxyadenine,

2-Butoxy-8-hydroxy-9-{6-(4-methoxycarbonyl-1-piperidyl)-3-pyridylmethyl}adenine,

2-Butoxy-8-hydroxy-9-{6-(3-methoxycarbonyl-1-piperidyl)-3-pyridylmethyl}adenine,

2-Butoxy-8-hydroxy-9-{(6-methoxycarbonylmethoxy-2-naphthyl)methyl} adenine,

2-Butoxy-8-hydroxy-9-{(6-methoxycarbonylmethyl-3-pyridyl)methyl}adenine,

2-Butoxy-9-{6-(γ-butyrolactonyl)thio-3-pyridyl}methyl}-8-hydroxyadenine,

2-Butoxy-8-hydroxy-9-{(2-methoxycarbonyl-4-pyridyl)methyl}adenine,

2-Butoxy-8-hydroxy-9-{(5-methoxycarbonyl-2-thienyl)methyl}adenine, and

2-Butoxy-8-hydroxy-9-{(5-methoxycarbonylmethyl-3-pyridyl)methyl}adenine.